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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project	Date	Author

TITLE

PINE BEETLE SURVEY OF 1945

on the

MALHEUR NATIONAL FOREST

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December 5, 1945

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December 5, 1945

PINE BEETLE SURVEY OF 1945
on the
MALHEUR NATIONAL FOREST

The fifteenth annual survey of forest insect conditions in the virgin ponderosa pine stands within and adjacent to the Malheur National Forest was conducted during the period September 28 to October 9 inclusive. This survey was again carried on as a cooperative project between the Forest Service and the Bureau of Entomology and Plant Quarantine. Personnel participating in the field work were Mr. J. E. Livingston, Martin Watson, and Carl Looney of the Forest Service; and Mr. J. M. Whiteside and W. J. Buckhorn of the Bureau.

Due to the shortage of manpower and time it was necessary to limit the 1945 survey to a 100 percent cruise of insect caused losses on the nine 320 acre check plots. However, some idea of general conditions on the forest was obtained from observations made while traveling to and from the check plots.

The 1945 survey completed the 1944 loss records on the plots and provided a partial record of the 1945 loss.

Results of the 1945 Survey

The deficiency of precipitation which began in 1943 became more acute during 1944. These conditions resulted in a marked decline of tree vigor and created an environment favorable to bark beetle development which was reflected in an upward trend of infestation during 1944. Losses on the plots averaged some 53 board feet per acre or .38 percent of stand. While these losses represent an increase of 47 percent above the 1943 losses, which were the lowest on record, they remain the second lowest since the surveys began.

The aggressiveness of the bark beetle attacks and the vigorous broods developing during 1944 gave every indication that the infestation was again on its way to assume serious proportions. These aggressive tendencies apparently did not continue through 1945 as indications are that the infestation remained more or less static during the past season. Undoubtedly the lack of vigor was due to the unusual weather conditions that prevailed during the spring of 1945, first by above normal precipitation, especially during May, which greatly aided tree growth, and second by subnormal temperatures during June which considerably retarded brood development.

The 1945 losses on the plots were estimated to have averaged approximately 50 board feet per acre or .36 percent of stand. These losses were estimated through use of a factor developed from experience as to the probable percent of the total loss for the season present on the plot at time of survey.

The total 1944 and estimated 1945 losses are presented in Table 1.

General Forest Conditions

Although the infestation increased sharply during 1944 generally favorable conditions prevail in the virgin stands on the forest. Only two centers of above normal infestation of light epidemic character were noted. One of these is in the fringe type on the East Fork of Beech Creek, the other center is on Emigrant and Sawtooth Creeks. However, these centers do not show signs of becoming aggressive.

A serious condition exists in the cutover stands on the divide between Bear Valley and Canyon Creek drainages. Data from cutover study plots, some of which are located in these stands reveal that losses up to 82 board feet per acre or .91 percent of stand occurred during 1944. Indications are that equally severe losses occurred during 1945. This situation will bear careful watching during the coming season and should further increases occur direct control methods may be necessary to reduce losses to a more nominal figure. A more comprehensive report on conditions in the cutover stands surrounding Bear Valley is now under preparation by Mr. J. M. Whiteside of this office.

Other Insects

Id. by Heinrich as "Archips retiniana (Wlk.) a race of A. fumiferana

Stands of ponderosa pine reproduction east of the Malheur River near the heads of Cliff, Skookum and Lee Creeks were found to have been defoliated to some extent by two insects. One is a tip moth tentatively identified as Eucosma bobana Kerf. the larva of which attacked the 1945 needle growth mining out the base of the needles on the terminal and twigs. The other insect is a sawfly, Neodiprion sp., whose larva consumed the 1944 and older needle growth. In many cases both of these insects attacked the same tree which usually resulted in complete defoliation. As the buds of the defoliated stems remained unharmed the damage is not believed serious unless again defoliated next season.

See letter of 4/29/46 from Fenno. file 286.

Conclusions

Although the infestation increased sharply during 1944, the present status of the infestation in virgin stands over much of the forest is still decidedly endemic in character. Only two centers of above normal infestation, of light epidemic status, exist; one on the East Fork of Beech Creek, the other on Emigrant and Sawtooth Creeks. In no situation is the infestation sufficiently aggressive to warrant direct control action.

A moderate epidemic exists in the cutover stands on the divide between Bear Valley and Canyon Creek drainages. No direct action is recommended at this time but the situation should be carefully watched for any further signs of aggressiveness.

The situation in the area of defoliation should be observed early this coming season, as little is known of the habits of the two insects, and there is a possibility of damage to the mature stand.

Ponderosa Pine killed by bark beetles on virgin check plots
Malheur National Forest and adjacent private lands

Area and Plot	Plot Description					1944 Loss					1945 Loss					
											Trees Actually Marked	Est. of probable total for Season				
	T	R	Sec.	Timber Acres	Pine Volume B. M.	No. Trees	Volume B.M.	BM Per Acre	% of Stand	Ratio to 1943		No. Trees	Volume B.M.	BM per Acre	% of Stand	Ratio to 1944
John Day																
Long Cr.	10S	28E	24 S½	320	2,912,320	7	5,070	16	.17	3.20	5	8	6,670	21	.23	1.32
Rudio Mtn.	11S	28E	26 W½	245	3,034,520	5	2,860	12	.09	.32	8	12	11,600	47	.38	4.06
Beech Cr.	12S	31E	25 N½	313	2,366,770	56	25,090	80	1.06	1.40	31	45	24,840	78	1.05	.99
Area Total				878	8,313,610	68	33,020	38	.34	1.17	44	64	43,110	49	.52	1.30
Snow Mtn.																
Sawtooth	19S	28E	15 E½	320	4,939,780	30	17,440	54	.35	2.60	31	45	25,560	80	.52	1.47
Malheur River																
Bridge Cr.	17S	32E	36 W½	320	4,663,500	12	12,100	38	.26	1.33	6	9	8,660	27	.19	.71
Williams Rch	20S	32E	30 W½	320	4,739,590	20	13,820	43	.29	1.23	17	26	18,390	57	.39	1.33
Mahogany Spr.	17S	33½E	28 E½	320	3,666,700	23	18,540	48	.42	2,77	14	21	20,440	64	.56	1.10
Summit Cr.	17S	35E	29 E½	320	4,336,040	14	12,500	39	.29	2.58	5	8	10,180	32	.24	.82
Crane Prairie	16S	35E	10 W½	320	8,321,140	34	41,860	131	.50	3.20	7	11	13,750	43	.17	.33
Area Total				1,600	25,726,970	103	98,820	62	.38	2.20	49	75	71,420	45	.28	.71
TOTAL 9 PLOTS				2,798	38,980,360	201	149,280	53	.38	1.85	124	184	140,090	50	.36	.94